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H.B. Fuller Docket No.: 94-36-3-US-D1 11/14/02

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Werenicz et al. Art Unit: 1733
Serial No.: 09/057,406 Examiner: Aftergut
Filed: April 8, 1998
Title: METHOD FOR PRODUCING A CONTINUOUS THERMOPLASTIC COATING

Assistant Commissioner for Patents
Washington, D.C. 20231
BOX AF

APPEAL BRIEF

Applicants submit the following in support of their Notice of Appeal dated September 12, 2002, in response to the outstanding Office Action dated September 4, 2002.

I. Real Party In Interest

The real party in interest is H.B. Fuller Licensing & Financing Inc.

II. Related Appeals and Interferences

There are no related appeals or interferences pending.

III. Status of Claims

Claims 2-12, 33-36, 38-42, 44 and 46-56 are pending.

IV. Status of Amendments

The September 4, 2002 Advisory Action indicates that the August 12, 2002 Response will be entered for purposes of Appeal.

V. Summary of Invention

Applicants have discovered a coating method for coating a continuous film of a non-Newtonian thermoplastic composition having a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at

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the coating temperature without contact between the coating device and the substrate being coated (Applicants' Specification, page 3, line 28-32 and page 4, lines 17-20).

Applicants have also discovered a noncontact coating method for coating a continuous film of a thermoplastic composition or a hot melt adhesive composition at low coat weights including, e.g., less than 30 g/m^2, less than 20 g/m^2, and less than 10 g/m^2 (Id. at page 8, lines 13-15).

In one aspect, the invention features a method of forming a continuous film layer of a thermoplastic composition on a substrate (Id. at page 5, lines 6-10). The method includes providing a molten thermoplastic composition, advancing a substrate along a path, dispensing a continuous film of the thermoplastic composition from a coating device at a coating temperature where the thermoplastic composition has a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature, suspending the film between the coating device and the substrate, and contacting the film with the advancing substrate (Id. at page 4, lines 17-20). The thermoplastic composition is released from the coating device at a temperature of less than about 160°C (Id. at lines 12-13).

In another aspect, the invention features a method of forming a continuous film layer of a hot melt adhesive composition onto a nonwoven substrate, the method including the steps of advancing a nonwoven substrate made from fibers along a path, dispensing a continuous film of the hot melt adhesive composition from a coating device at a coating temperature wherein the hot melt adhesive composition has a complex viscosity ranging from about 100 to about 1,000 poise at about 1 radian/second at the coating temperature, suspending the continuous film such that the film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate the continuous film, and contacting the film with the advancing substrate (Id. at page 6, lines 24-26, page 9, lines 11-15, and page 10, lines 11-12).

VI. Issues

Are claims 3-6, 8, 10-12, 33, 35, 36, 39-42, 44, and 46-48 patentable under 35 U.S.C. § 103 over Sanftleben et al. (U.S. 5,510,138) in view of Boger et al. (U.S. 5,409,733)?

Are claims 2-12, 33-36, 38-42, 44, and 46-56 patentable under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. (U.S. 4,939,202) further in view of Smith et al. (U.S. 3,402,086) and optionally further in view of Buell (U.S. 4,147,580)?

Are claims 3 and 4 stand rejected under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. optionally in view of Buell and further in view of Waggoner (U.S. 3,904,806) or U.K. 688,637?

Is claim 55 obvious under the judicially created doctrine of obviousness-type double patenting over claim 18 of U.S. Patent No. 5,827,252 (the '252 patent) in view of EP 315,013?

VII. Grouping of Claims

The claims of each group stand or fall together, but the groups do not stand or fall together.

Group I: Claims 2-12, 33-36, 38-42, 44 and 46-54 and 56.

Group II: Claim 55

VIII Argument

Claims 3-6, 8, 10-12, 33, 35, 36, 39-42, 44, and 46-48 stand rejected under 35 U.S.C. § 103 over Sanftleben et al. in view of Boger et al.

Sanftleben et al. disclose conformal coating materials for forming a protective conformal coating on the surface of an electronic assembly, e.g., a filled printed circuit board. The conformal coating materials of Sanftleben et al. include hot melt compositions that are either nonreactive, i.e., can be remelted after solidifying, or reactive, i.e., curable.

Boger et al. disclose that five principal methods have been used to apply coatings of moisture proof insulators to printed circuit boards, and that these methods include immersion, brush-coating, roller, spray and slit die. The portion of Boger et al. that

discusses the slit die coating method at column 2, lines 14-17 and lines 52-63, which forms the basis of the rejection, is herein referred to as the "slit die method."

Claim 10 is directed to a method of forming a continuous film layer of a thermoplastic composition onto a substrate. The method includes providing a molten thermoplastic composition, advancing a substrate along a path, dispensing a continuous film of the thermoplastic composition from a coating device at a coating temperature where the thermoplastic composition has a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature, suspending the film between the coating device and the substrate, and contacting the film with the advancing substrate. The thermoplastic composition is released from the coating device at a temperature of less than about 160°C. Neither Sanftleben et al. nor Boger et al. teach a thermoplastic composition that has a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature. To the contrary, Sanftleben et al. disclose that their compositions preferably have a viscosity of less than about 10 poise at the elevated application temperature, and that a viscosity of less than about 2.5 poise is preferred (Sanftleben et al., col. 4, l. 37-39). Thus, Sanftleben et al. fail to teach a required element of claim 10, i.e., a thermoplastic composition having a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature.

Boger et al. fail to cure the deficiencies of Sanftleben et al. Boger et al. do not provide any information about the viscosity of the compositions that can be used in the prior art slit die coating methods referred to therein. We note that the compositions disclosed by Boger et al. for use in their coating method have a viscosity of 3 Poise and 7.5 Poise (Boger et al., col. 10, l. 55 and 60). Therefore, the proposed combination of Sanftleben et al. and Boger et al. lacks a required element of claim 10, i.e., a thermoplastic composition having a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging

from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature. Applicants submit, therefore, that the rejection of claim 10 under 35 U.S.C. § 103 over Sanftleben et al. in view of Boger et al. is unwarranted and cannot stand. Should this rejection be maintained, Applicants respectfully request the Examiner to identify, by reference to column and line number, where the composition of claim 10 is taught in Sanftleben et al. or Boger et al.

The proposed combination of Sanftleben et al. and Boger et al. is further deficient for at least the following reasons. Sanftleben et al. do not teach dispensing a continuous film of the thermoplastic composition from a coating device at a coating temperature and suspending the film between the coating device and a substrate. Sanftleben et al. disclose a number of possible methods for applying their low viscosity hot melt conformal coating compositions including nonpattern-specific spray, extrusion, brushing and flowing heated wave techniques. However, Sanftleben et al. provide no details regarding these methods. Sanftleben et al. state, "[I]t would be desirable if such a coating material could be applied using techniques which enable more selective application in order to avoid bridging the gap between the circuit components and the circuit board of the electronic assembly" (Sanftleben et al., col. 3, lines 13-17). Thus, Sanftleben et al. seek to use application techniques that allow more selective application of the conformal coating composition.

In the Examples, Sanftleben et al. describe applying one composition using a handheld cartridge applicator and other compositions using a spray nozzle. Sanftleben et al. do not teach or suggest dispensing a <u>continuous film</u> of thermoplastic from a coating device or suspending a continuous film between a coating device and a substrate. To the contrary, Sanftleben et al. disclose, "Minimal stringing occurred between the applicator and the circuit board being coated during application, <u>suggesting that the formulation could be dispensed with a brush applicator</u>" ((Emphasis added) col. 10, lines 26-27). The presence of stringing indicates that the composition of Sanftleben et al. <u>did not</u> form a continuous film. In addition, Sanftleben et al. specifically suggest that the composition could be dispensed with a brush applicator. Thus, Sanftleben et al. direct the skilled artisan to the use of a brush applicator. It is noteworthy that the remaining examples of Sanftleben et al. use spray nozzle application techniques.

Boger et al. do not cure the deficiencies of Sanftleben et al. To establish obviousness based upon a proposed combination of references there must be some teaching, suggestion or motivation in the prior art for making the proposed combination. See Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437 (Fed. Cir. 1997); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, (Fed. Cir. 1998). Here there is no such teaching, suggestion or motivation. Boger et al. describe a number of coating methods that have been used in the past to apply coatings of moisture proof insulators to printed circuit boards including immersion, brush-coating, roller, spray and slit die. Nothing in Boger et al. directs the skilled artisan to select the slit die method from among the many methods identified in Boger et al. for use with a thermoplastic composition having a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature or a Sanftleben et al. composition. To the contrary, Boger et al. actually teach away from using the slit die method. Boger et al. teach that there are many drawbacks associated with the disclosed coating methods in general, and the slit die coating method in particular (see Boger et al., col.. 2). To further illustrate the drawbacks of the cited coating methods, Boger et al. incorporate U.S. Patent Nos. 4,880,663 and 4,735,819 by reference (Id.). Both the '663 patent and the '819 patent disclose:

> [A]ll methods except brush-coating require masking for those parts to be left uncoated. The masking operations, that is, mounting and removal of the masks, must be done manually, causing a bottleneck in the mass production process.

(Emphasis added) ('663 patent, col., 2, lines 48-57; '819 patent, col. 2, lines 55-60). Thus, the clear teaching of Boger et al., taken as a whole, is away from the prior art methods, including the slit die method mentioned therein. In addition, there is nothing in Boger et al. that teaches or suggests that the slit die coating method referred to therein provides the selective application desired by Sanftleben et al. Thus, the skilled artisan would have no reason to select the slit die method from among the many coating methods disclosed in both Boger et al and Sanftleben et al., and further would likely refrain from doing so in light of Boger et al.'s express teaching away from such a method, and

Sanftleben et al.'s direction to use application techniques that enable more selective application of the composition.

We further note that the rejection of claim 10 under 35 U.S.C. § 103 over Sanftleben et al. in view of Boger et al. appears to be a rejection based upon an obvious to try standard. Whether a particular combination might be "obvious to try" is not a legitimate test of patentability. In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); In re Goodwin, 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA 1978). Rather, the proper test is whether one skilled in the art would have "a reasonable expectation that the beneficial result will be achieved." In re Merck & Co., 800 F.2d 1091, 1097 (Fed. Cir. 1986). Prior art that makes the invention only "obvious to try" rather than "obvious" "gives either no indication of which parameters are critical or no direction as to which of many possible choices is likely to be successful." Merck & Co. v. Biocraft Labs., 874 F.2d 804, 807 (Fed. Cir. 1989). Here, Boger et al. fail to teach which parameters are critical and also fail to teach which of the many possible coating techniques is likely to be successful. Boger et al. do not teach anything about the properties of the compositions (i.e., the properties of the compositions prior to coating, not after coating) that can be used in the slit die method referred to therein. Without this information, the skilled artisan can have no reasonable expectation that the compositions of Sanftleben et al. could be successfully coated as a continuous film using a slit die method, and further would have no reasonable expectation that the Sanftleben et al. compositions would form a continuous film capable of being suspended between a coating device and a substrate.

The implication in the June 12, 2002 Office action (page 6) that all commercially available conformal coating compositions can be coated using a slit die method is not well taken and is not supported by the express teachings in the cited references. Neither Sanftleben et al. nor Boger et al. teach or suggest that all conformal coating compositions can be coated using the slit die method to which Boger et al. refers. Sanftleben et al. disclose that there are a wide variety of conformal coating compositions in existence including "polymeric materials of the silicone, acrylic, urethane and epoxy families" (Sanftleben et al., col. 1, lines 36-38) and reactive and nonreactive conformal compositions. Some of the coating compositions of Sanftleben et al. are solid or

semisolid at from –40°C to about 125°C, others exhibit viscosities on the order of 50,000 cps to 5,000,000 cps at room temperature, and others are liquid at room temperature (Id. at col. 4, lines 8-20, and col. 12). Thus, Sanftleben et al. disclose that conformal coating compositions can have wide ranging properties. Sanftleben et al. further disclose that the properties of a composition impact the coating methods that are available for use with the composition. The previously quoted passage from Sanftleben et al., for example, indicates that application using a brush applicator might work. (Id., at col. 10, lines 26-29). In addition, Sanftleben et al. state that it is foreseeable that viscosities in excess of about 100 Poise may be acceptable depending on the application method, the desired thickness of the coating and the surface area to be covered (Id., at col. 6, lines 44-47). Thus, it is clearly not the case that all conformal coating compositions can be coated using all coating methods. Since Boger et al. fail to teach or suggest the critical properties necessary for successfully using the slit die method described therein, the skilled artisan would not have a reasonable expectation of successfully dispensing the composition of Sanftleben et al. in the form of a continuous film or suspending a continuous film of the composition between a coating device and a substrate. In light of the above, Applicants submit that the rejection of claim 10 under 35 U.S.C. § 103 over Sanftleben et al. in view of Boger et al. is unwarranted and respectfully submit request that it be withdrawn.

Claims 3-6, 8, 11-12, 33, 35, 36, 39-42, 44, and 46-48 are patentable under 35 U.S.C. § 103 over Sanftleben et al. in view of Boger et al. over the proposed combination of Sanftleben et al. and Boger et al. for at least the same reasons set forth above in distinguishing claim 10.

Claims 2-12, 33-36, 38-42, 44, and 46-56 stand rejected under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally further in view of Buell.

EP 315,013 discloses a method of making a diaper that includes coating a thermoplastic polymer material onto a web by means of a surface nozzle or an application roller.

Maletsky et al. disclose hot melt compositions. The one example composition disclosed by Maletsky et al. is a hot melt adhesive blend that includes hydrocarbon resin,

amorphous polypropylene, antioxidant and crystalline polypropylene, and has a melt viscosity of 11,000 cps at 325°F (i.e., 162.8°C).

Smith et al. disclose a hot melt extrusion coating process that includes extruding a random copolymer of ethylene and acrylic acid at a temperature of about 105°C to about 250°C in the form of a thin film that is deposited on a substrate.

Buell et al. disclose a method of bonding a porous web to a substrate. The Buell et al. method includes applying a discontinuous hot melt adhesive to a porous fibrous web by direct contact extrusion.

As indicated above, claim 10 is directed to a method of forming a continuous film layer of a thermoplastic composition onto a substrate. The method includes providing a molten thermoplastic composition, advancing a substrate along a path, dispensing a continuous film of the thermoplastic composition from a coating device at a coating temperature where the thermoplastic composition has a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature, suspending the film between the coating device and the substrate, and contacting the film with the advancing substrate. The thermoplastic composition is released from the coating device at a temperature of less than about 160°C. The position taken in the various Office actions and the September 4, 2002 Advisory action issued against the above-captioned application, when crystallized down to its basic elements, is that EP 315,013 inherently teaches a noncontact coating method. In the September 4, 2002 Advisory Action the Examiner states, "Buell clearly suggested that contact coating would have yielded a discontinuous film and thus one would have expected that the coating in [EP 315,013] would have been non-contact coating (because the formation of a discontinuous film in [EP 315,013] was not desirable)." Thus, the Examiner's position in is that the skilled artisan would recognize EP 315,013 as inherently teaching a noncontact coating method. Inherency is not an appropriate basis for a rejection based on obviousness. See, e.g., <u>In re Rijckaert</u>, 9 F.3d 1531, 1534 (Fed. Cir. 1993). It is well established that, that which may be inherent is not necessarily known and that obviousness cannot be predicated on that which is unknown. <u>In re Spormann</u>, 53 C.C.P.A. 1375, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966).

Moreover, it is well settled that a retrospective view of inherency is not a substitute for some teaching or suggestion supporting an obviousness rejection. See In re Newell, 891 F.2d 899, 901, 13 USPQ2d 1248, 1250 (Fed. Cir. 1989)"). In other words, because that which is alleged to be inherent, i.e., a noncontact coating method, is not necessarily known to the skilled artisan, it cannot be deemed to be part of the prior art. Therefore, because the alleged inherent teaching is not known, it cannot be combined with other teachings in the prior art to arrive at an obviousness conclusion. A rejection under 35 U.S.C. § 103 that relies on inherency, therefore, is not sound and cannot stand. For this reason alone, Applicants submit that the rejection of claim 10 under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally in view of Buell cannot stand and must be withdrawn.

The proposed rejection of claim 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally in view of Buell is further deficient for at least the following additional reasons: As demonstrated above, EP 315,013 does not teach dispensing a continuous film of the thermoplastic composition from a coating device or suspending a continuous film between a coating device and a substrate. Rather, EP 315,013 discloses applying a thermoplastic polymer using an application roller or a surface nozzle. As indicated above, EP 315,013 does not provide any details regarding how the application roller or the surface nozzle applies the thermoplastic material. However, there is nothing in EP 315,103 that teaches that the application roller depicted in Fig. 3 of EP 315,013 can apply a composition unless it is in contact with a substrate. Therefore, at most EP 315,013 discloses a contact coating method.

Maletsky et al. fail to cure the deficiencies of EP 315,013. To establish obviousness based upon a proposed combination of references there must be some teaching, suggestion or motivation in the prior art for making the proposed combination. See Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437 (Fed. Cir. 1997); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, (Fed. Cir. 1998). In addition, the skilled artisan must have a reasonable expectation that the beneficial result will be achieved. In re Merck & Co.. Here there is no such teaching, suggestion or motivation. There also is no reasonable expectation of success. Maletsky et al. do not teach or suggest dispensing

a continuous film of the thermoplastic composition from a coating device or suspending a continuous film between a coating device and a substrate.

Smith et al. fail to cure the deficiencies of EP 315,013 and Maletsky et al. Smith et al. do not teach dispensing a continuous film of a thermoplastic a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature from a coating device and suspending the continuous film between the coating device and a substrate. Instead, Smith et al. disclose that olefin polymers and copolymers have been coated in the past using a method referred to as "hot melt extrusion process," which is described as including extruding molten polymer through a slit die to form a molten film of polymer and depositing the molten film onto a substrate (Smith et al., col. 1, lines 27-33). However, Smith et al. do not teach that all thermoplastic polymers and compositions can be coated using the hot melt extrusion process described therein. To the contrary, Smith et al. specifically note that shortcomings arose when the hot melt extrusion process described therein was used to coat polyolefin polymers and copolymers (Id. at col. 1, lines 34-50). Smith et al. addressed those shortcomings by formulating a specific copolymer that overcame those shortcomings. The particular copolymer was a random copolymer of ethylene and acrylic acid. Smith et al. found that this particular copolymer could be coated using a noncontact coating method. Thus, Smith et al. teach that the noncontact coating method described therein is not universally suited to coating all olefin polymers and copolymers. Smith et al. do not teach or suggest that all thermoplastic polymers, regardless of their properties, can be coated using the noncontact coating method described therein. Accordingly, the skilled artisan would not think to employ the method of Smith et al. to dispense a thermoplastic a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature from a coating device in the form of a continuous film or suspended the continuous film between the coating device and a substrate.

The Example composition disclosed by Maletsky et al. is described as an adhesive blend that includes hydrocarbon resin, amorphous polypropylene, antioxidant and

crystalline polypropylene, and has a melt viscosity of 11,000 cps at 162.8°C. There is nothing in Maletsky et al. or Smith et al. that teaches or suggests that the properties of the copolymer of Smith et al. are anything like the properties of the adhesive blend of Maletsky et al. Moreover, there is nothing in Smith et al. to suggest that a coating method that is suitable for the neat copolymers of Smith et al. is suitable for the hot melt adhesive blend of Maletsky et al. Accordingly, the skilled artisan, familiar with the adhesive blend of Maletsky et al., would have no reason to select the coating method disclosed in Smith et al. for use in applying the adhesive blend of Maletsky et al. and further would have no reasonable expectation that the adhesive blend of Maletsky et al. could be successfully dispensed as a continuous film from a coating device and suspended in the form of a continuous film between the coating device and a substrate. Applicants submit, therefore, that the rejection of claim 10 under 35 U.S.C. § 103 over of EP 315,013 in view of Maletsky et al. and further in view of Smith et al. is unwarranted and request that it be withdrawn.

As demonstrated above, Buell does not cure the deficiencies of EP 315,013, Maletsky et al. and Smith et al. Buell does not teach that all contact coating methods inherently produce a discontinuous coating. Rather, Buell discloses applying discreet "globules" of hot melt adhesive to a nonwoven web. Applying discreet globules is an intended outcome of the Buell coating process. The method of Buell is not designed to obtain a continuous coating, i.e., the object of Buell is not to obtain a continuous coating. Buell teaches nothing about what type of coating method should be used to obtain a continuous film. Thus, the skilled artisan seeking to obtain a continuous coating would have no reason to look to Buell, and further would find Buell to have no bearing on EP 315,013, Maletsky et al., or Smith et al. Moreover, because Buell does not teach that all contact coating methods inherently produce a discontinuous coating, it is inappropriate for the Examiner to take the position that it does. In light of the above Applicants submit that the rejection of claim 10 under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally in view of Buell cannot stand and must be withdrawn.

Claims 2-12, 33-36, 38-42, 44, and 46-56 are distinguishable under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and

optionally in view of Buell for at least the same reasons set forth above in distinguishing claim 10.

Claim 55 is further distinguishable over the proposed combination of references for at least the following additional reasons. Claim 55 is directed to a method of forming a continuous film layer of a hot melt adhesive composition onto a nonwoven substrate. The method includes the steps of advancing a nonwoven substrate made from fibers along a path, dispensing a continuous film of the hot melt adhesive composition from a coating device at a coating temperature wherein the hot melt adhesive composition has a complex viscosity ranging from about 100 to about 1,000 poise at about 1 radian/second at the coating temperature, suspending the continuous film such that the film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate the continuous film, and contacting the film with the advancing substrate. Neither EP 315,013 nor Maletsky et. al. nor Smith et al. nor Buell teach or suggest suspending a continuous film of hot melt adhesive composition such that the film builds in viscosity and cohesive strength. Therefore, the proposed combination of EP 315,013, Maletsky et. al., Smith et al. and Buell lacks a required element of claim 55. For this reason alone, the rejection of claim 55 under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally in view of Buell is unwarranted and must be withdrawn.

The rejection of claim 55 under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. further in view of Smith et al. and optionally in view of Buell is further deficient for at least the following reasons. EP 315,013 does not teach a hot melt adhesive composition. Rather, EP 315,013 discloses compositions that include only thermoplastic polymer, i.e., polyethylene, ethylene vinyl acetate or ATP (Translation of EP 315,013, page 3). EP 315,013 also does not teach suspending a continuous film of hot melt adhesive composition such that the film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate the continuous film. Rather, EP 315,013 discloses applying thermoplastic polymer material on a web with an application roller (Id. at page 5).

Maletsky et al. do no cure the deficiencies of EP 315,013. Maletsky et al. do not teach dispensing a continuous film of the hot melt adhesive composition from a coating

device or suspending a continuous film of hot melt adhesive composition such that the film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate the continuous film.

Smith et al. do not cure the deficiencies of EP 315,013 and Maletsky et al. Smith et al disclose applying neat thermoplastic polymer to a substrate. Smith et al. do not teach or suggest dispensing a continuous film of a hot melt adhesive composition. Smith et al. specifically note that shortcomings arose when the hot melt extrusion process described therein was used to coat polyolefin polymers and copolymers (Smith et al., col. 1, lines 34-50). Smith et al. addressed those shortcomings by formulating a specific copolymer that overcame those shortcomings. The particular copolymer was a random copolymer of ethylene and acrylic acid. Smith et al. found that this particular copolymer could be coated using the coating method described therein. The Example composition disclosed by Maletsky et al. is described as an <u>adhesive</u> blend that includes hydrocarbon resin, amorphous polypropylene, antioxidant and crystalline polypropylene, and has a melt viscosity of 11,000 cps at 162.8°C. There is nothing in Maletsky et al. or Smith et al. that teaches or suggests that the properties of the copolymer developed by Smith et al. are anything like the properties of the adhesive blend of Maletsky et al. Moreover, there is nothing in Smith et al. to suggest that a coating method that is suitable for the neat copolymers of Smith et al. is suitable for the hot melt adhesive blend of Maletsky et al. Accordingly, the skilled artisan, familiar with the adhesive blend of Maletsky et al., would have no reason to select the coating method disclosed in Smith et al. for use in applying the adhesive blend of Maletsky et al. In addition, because the neat polymers of Smith et al. are nothing like the hot melt adhesive composition of Maletsky et al., the skilled artisan would have no reasonable expectation of successfully dispensing or suspending a continuous film of the hot melt adhesive composition of Maletsky et al. from a coating device. Furthermore, because Smith et al. do not teach or suggest contacting a continuous film of a hot melt adhesive composition with a nonwoven substrate that include fibers, the skilled artisan have no reasonable expectation of successfully forming a continuous film layer of hot melt adhesive composition on a nonwoven substrate.

Buell does not cure the deficiencies of EP 315,013, Maletsky et al. and Smith et al. Buell teaches nothing about dispensing a hot melt adhesive composition from a coating device in the form of a continuous film or suspending a continuous film of hot melt adhesive composition such that the film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate the continuous film. In light of the above, Applicants submit that the rejection of claim 55 under 35 U.S.C. 103 over EP 315,013, in view of Maletsky et al. and Smith et al. and optionally further in view of Buell is unwarranted and should be withdrawn.

Claims 3 and 4 stand rejected under 35 U.S.C. § 103 over EP 315,013 in view of EP 315,013 in view of Maletsky et al. further in view of Smith et al. optionally further in view of Buell and further in view of Waggoner (U.S. 3,904,806) or U.K. 688,637. Neither Waggoner nor U.K. 688,637 cure the above-described deficiencies of EP 315,013, Maletsky et al., Miller et al., Smith et al., Thomson et al. and Buell. Accordingly, Applicants submit that claims 3 and 4 are patentable under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. or Miller et al. further in view of Smith et al. or Thomson et al., optionally further in view of Buell, and further in view of Waggoner or U.K. 688,637, for at least the reasons set forth above in distinguishing claim 10. In addition, Applicants further note that nothing in either Waggoner nor U.K. 688,637 teaches or suggests an appropriate distance for spacing a coating device from a substrate for a thermoplastic composition having a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature. Accordingly, the skilled artisan would have no reason to select the particular distances specified in claims 3 and 4. For at least this additional reason, Applicants submit that the rejection of claims 3 and 4 under 35 U.S.C. § 103 over EP 315,013 in view of Maletsky et al. or Miller et al. further in view of Smith et al. or Thomson et al., optionally further in view of Buell, and further in view of Waggoner or U.K. 688,637 is further unwarranted and request that it be withdrawn.

Claim 55 stands rejected under the judicially created doctrine of obviousness-type double patenting over claim 18 of U.S. Patent No. 5,827,252 (the '252 patent) in view of EP 315,013.

Claim 55 is directed to a method of forming a continuous film layer of a hot melt adhesive composition on a nonwoven substrate. The method includes suspending the film such that the film builds in viscosity and cohesive strength such that any fibers of the nonwoven substrate do not penetrate the continuous film. Claim 18 of the '252 patent does not recite a hot melt adhesive composition and does not recite, "suspending a continuous film such that the film builds in viscosity and cohesive strength such that any fibers of a nonwoven substrate do not penetrate the continuous film." EP 315,013 does not cure the deficiencies of the '252 patent. EP 315,013 does not teach a hot melt adhesive composition. Rather, EP 315,013 discloses a thermoplastic polymer material that is polyethylene, ethylene vinyl acetate or ATP. EP 315,013 also does not teach or suggest suspending a continuous film such that it builds in viscosity and cohesive strength such that any fibers of a nonwoven substrate do not penetrate the continuous film. Thus, the proposed combination of claim 18 of the '252 patent in view of EP 315,013 lacks required elements of claim 55, i.e., a hot melt adhesive composition and the step of suspending a continuous film of hot melt adhesive composition such that the film builds in viscosity and cohesive strength such that any fibers of a nonwoven substrate do not penetrate the continuous film. To the extent that the Office action relies inherency to support this rejection, Applicants again note that inherency is not an appropriate basis for a rejection based on obviousness. See, e.g., In re Rijckaert. In light of the above, Applicants submit that the rejection of claim 55 under the judicially created doctrine of obviousness-type double patenting over claim 18 of the '252 patent in view of EP 315,013 is unwarranted and request that it be withdrawn.

The claims now pending in the application are in condition for allowance and such action is respectfully requested. The Examiner is invited to telephone the undersigned if a teleconference interview would facilitate prosecution of this application.

An Appendix of the Claims involved in the appeal is attached at Tab 1.

Please charge any fees owing or credit any over payments made to Deposit Account No. 06-2241.

Respectfully submitted,

Date: November 12, 2002

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TAB 1

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APPENDIX OF CLAIMS

10. A method of forming a continuous film layer of a thermoplastic composition onto a substrate, said method comprising the steps of:

a) providing a molten thermoplastic composition;

b) advancing a substrate along a path;

c) dispensing a continuous film of said thermoplastic composition from a coating device at a coating temperature wherein the thermoplastic composition has a complex viscosity of less than about 500 poise at about 1000 radians/seconds at the coating temperature and a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature;

d) suspending said film between said coating device and said substrate; and

e) contacting said film with said advancing substrate wherein the thermoplastic composition is released from the coating device at a temperature of less than about 160°C.

2. The method according to claim 10, wherein said substrate is selected from a group consisting of textile material, heat sensitive material, paper, hook and loop fastening web, polyethylene materials and non-woven.

3. The method according to claim 10, wherein the coating device is spaced from the path of the substrate at a distance between about 0.5 to about 20 mm.

4. The method according to claim 3, wherein the distance between the coating device and the substrate is less than about 10 mm.

5. The method according to claim 10, wherein the coating device is a slot nozzle.

6. The method according to claim 5, wherein said slot nozzle has a shim gap of less than 5 mm.

7. The method according to claim 10, wherein the substrate is directed substantially vertically immediately after passing the coating device.

8. The method according to claim 10, wherein the thermoplastic composition is dispensed onto the substrate such that the coating weight is less than about 30 g/m^2.

9. The method according to claim 10, wherein the thermoplastic composition is coated at a rate of 200 meters/min.

11. The method according to claim 10, wherein the thermoplastic composition is released from the coating device at a temperature of less than about 125°C.

12. The method according to claim 10, wherein the thermoplastic composition is released from the coating device at a temperature of less than about 110°C.

33. A method of forming a continuous film layer of a hot melt adhesive onto a substrate, said method comprising the steps of:

a) providing a melted hot melt adhesive composition;

b) advancing a substrate along a path;

c) dispensing a continuous film of said hot melt adhesive composition from a coating device at a coating temperature wherein the hot melt adhesive composition has a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature;

d) suspending said film between said coating device and said substrate; and

e) contacting said film with said advancing substrate wherein said film has an area weight of less than 20 g/m^2.

34. The method according to claim 33, wherein said substrate is selected from the group consisting of textile material, heat sensitive materials, paper, hook and loop fastening webs, polyethylene materials, and nonwoven.

35. The method according to claim 33, wherein the coating device is spaced from the path of the substrate at a distance between about 0.5 and 20 mm.

36. The method according to claim 33, wherein the coating device is a slot nozzle.

37. The method according to claim 33, wherein the hot melt adhesive is dispensed onto the substrate such that the coating weight is less than about 30 g/m^2.

38. The method according to claim 33, wherein the hot melt adhesive is coated at a rate of at least about 200 meters/minute.

39. The method according to claim 33, wherein the hot melt adhesive is released from the coating device at a temperature less than about 160°C.

40. The method according to claim 33, wherein the hot melt adhesive is released from the coating device at a temperature less than about 125°C.

41. The method according to claim 33, wherein the hot melt adhesive is released from the coating device at a temperature less than about 110°C.

42. The method according to claim 10, wherein said thermoplastic composition is a hot melt.

44. A method of forming a continuous film layer of a hot melt adhesive onto a substrate, said method comprising the steps of:

a) providing a molten hot melt adhesive composition;

b) advancing a substrate along a path;

c) dispensing a continuous film of sad hot melt adhesive composition from a coating device at a coating temperature wherein the hot melt adhesive composition has a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature;

d) suspending said film between said coating device and said substrate; and

e) contacting said film with said advancing substrate wherein said film consists essentially of a single layer of said hot melt adhesive having a film thickness of 75 microns.

46. A method of forming a continuous film layer of a thermoplastic composition onto a substrate, said method comprising the steps of:

a) providing a molten thermoplastic composition;

b) advancing a substrate along a path;

c) dispensing a continuous film of sad thermoplastic composition from a coating device at a coating temperature wherein the thermoplastic composition has a complex viscosity of less than about 500 poise at about 1000 radians/second at the coating temperature and a complex viscosity ranging from about 100 to about 1,000 poise at about 1 radian/second at the coating temperature;

d) suspending said film between said coating device and said substrate; and

e) contacting said film with said advancing substrate wherein the coat weight of the film is less than 20 g/m^2.

47. The method of claim 10 wherein the thermoplastic composition is a polyolefin selected from the group consisting of polyethylene, polypropylene, amorphous polyolefins, and metallocene polyolefins.

48. The method of claim 33 wherein the hot melt adhesive composition comprises up to 40 % of a thermoplastic polymer, up to 40 % of a plasticizer and up to 70% of a tackifying resin.

49. The method of claim 10 wherein the thermoplastic composition is a polyolefin selected from the group consisting of atactic polyalphaolefins, synthetic rubbers, and ethylenic copolymers.

50. The method of claim 49 wherein the thermoplastic polymer is a synthetic rubber that is a block copolymer.

51. The method of claim 49 wherein the thermoplastic polymer is an ethylenic copolymer that is selected from the group consisting of ethylene-vinyl acetate, ethylene-methyl-acrylate, and ethylene n-butyl acrylate.

52. The method of claim 10 wherein the thermoplastic composition is breathable.

53. The method of claim 10 wherein the thermoplastic composition is water soluble.

54. The method of claim 10 wherein the thermoplastic composition is biodegradable.

55. A method of forming a continuous film layer of a hot melt adhesive composition onto a non-woven substrate, said method comprising the steps of:

a) advancing a non-woven substrate made from fibers along a path;

b) dispensing a melted hot melt adhesive composition from a coating device such that it exits the coating device as a continuous film at a coating temperature wherein the hot melt adhesive composition has a complex viscosity ranging from about 100 poise to about 1,000 poise at about 1 radian/second at the coating temperature;

c) suspending said continuous film such that said film builds in viscosity and cohesive strength such that any fibers of the substrate do not penetrate said continuous film; and

d) contacting said film with said advancing substrate.

56. A method of forming a continuous film layer of a thermoplastic composition onto a substrate, said method comprising the steps of:

a) providing a molten thermoplastic composition;

b) advancing a substrate along a path;

c) dispensing a continuous film of said thermoplastic composition from a coating device at a coating temperature wherein the thermoplastic composition has a complex viscosity less than about 500 poise at about 1000 radians/second at the coating temperature and a complex viscosity ranging from about 100 to about 1,000 poise at about 1 radian/second at the coating temperature between said coating device and said substrate;

d) suspending said film between said coating device and said substrate; and

d) contacting said film with said advancing substrate wherein said substrate is selected from the group consisting of textile material, paper, hook and loop fastening web, polyethylene material, non-woven and combinations thereof.